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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/647,264

08/26/2003

Chien-Ching Shen

SUND 475

2077

23995

7590

11/17/2005

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EXAMINER

GOKHALE, SAMEER K

ART UNIT

PAPER NUMBER

2673

DATE MAILED: 11/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/647,264	Applicant(s) SHEN, CHIEN-CHING	
	Examiner Sameer K. Gokhale	Art Unit 2673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 8/26/03 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following features must be shown:

- 1) Regarding claims 2 and 9, a second brightness of complete darkness must be shown or the feature(s) canceled from the claim(s).
- 2) Regarding claim 3 and 10, a default brightness signal as a low voltage signal for a VA mode liquid crystal display must be shown or the feature(s) canceled from the claim(s)..
- 3) Regarding claims 4 and 11, a default brightness signal as a high voltage signal for a TA mode liquid crystal display must be shown or the feature(s) canceled from the claim(s)..
- 4) Regarding claim 13, a device for repairing defective pixels in a liquid crystal display located in a scaler must be shown or the feature(s) canceled from the claim(s).
- 5) Regarding claim 14, a device for repairing defective pixels in a liquid crystal display wherein part of the elements of the device is installed in a scaler must be shown or the feature(s) canceled from the claim(s)..

No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended

replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 10 is objected to because of the following informalities: The term "VA" on line 16 needs to be spelled out. Appropriate correction is required.
3. Claim 11 is objected to because of the following informalities: The term "TN" on line 1 needs to be spelled out. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1-7, the claim recites the element "the pixel signal" on line 12 of claim 1 and it is unclear which pixel signal this is referring to. The pixel signal referred to on line 12 could be the "pixel signal", recited on line 5 of claim 1, wherein the pixel signal is an input signal and has not undergone any changes as a result of the claimed method, or it could be the pixel signal that has undergone the method of "replacing the first pixel brightness signal with a default brightness signal..." as recited on lines 8-9 of the claim. Therefore applicant must specify which pixel signal is referred to on line 12 of claim 1 as well as any reference to a pixel signal that appears in the dependent claims.

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 7 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Here, the claim recites the limitation "wherein the pixel location signal determines whether the pixel signal is used to be inputted to the defective pixel," on lines 9-11 of

the claim. The specification does not enable this limitation because it is not disclosed how the pixel location signal makes the determination as to whether the pixel signal is used to be inputted to the defective pixel.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1,5,7,8 are rejected under 35 U.S.C. 102(b) as being anticipated by Baldi (US 5,708,451).

Regarding claim 1, Baldi teaches a method for repairing defective pixels of a liquid crystal display panel (col. 1, lines 13-17) wherein the method comprises at least the steps of: obtaining the location of a defective pixel on the liquid crystal display (see col. 6, lines 65-67 through col. 7, lines 1-6);

inputting a pixel signal (Fig. 5, where the video signal is the pixel signal), wherein the pixel signal further comprises a first pixel brightness signal used to control a pixel with a first brightness according to the pixel signal (Fig. 5, It is inherent that the video signal is used to control a pixel with a first brightness);

replacing the first pixel brightness signal with a default brightness signal (see col. 8, lines 5-11, where the "correction" introduced in the incoming video signal is the replacement of its brightness signal; and see col. 8, lines 39-40, where the correction

matrix that supplies the correction values for changing of the brightness signal is a basic or initial one, which constitutes a default value being used) if the pixel signal is used to be inputted to the defective pixel (see col. 8, lines 5-11, it is inherent that the pixel signal is being compared to the addresses of deficient pixels in the correction memory), wherein the default brightness signal is used to control the pixel with a second brightness (see col. 8, lines 5-12, where the correction described is the equivalent of controlling the pixel with a second brightness);

and outputting the pixel signal (Fig. 5, the output pixel signal is the output of the correction circuit).

Regarding claim 5, Baldi teaches a method wherein the pixel signal further comprises a pixel location signal, which corresponds to the pixel (Fig. 5, the video signal is the pixel signal and it inherently comprises a pixel location signal since all standard video signals contain information, such as Hsync and Vsync signals, which allow for a determination of pixel location).

Regarding claim 7, Baldi teaches a method wherein the pixel location signal determines whether the pixel signal is used to be inputted to the defective pixel (Fig. 5, see col. 8, lines 5-12, and see col. 7, lines 1-6, where the incoming video signal comprises the pixel location signal as discussed for claim 5, and it is used to determined whether the pixel signal is used to be inputted to a defective pixel by activating the address generator which is coupled to the correction matrix which stores the addresses of pixels that need correction for defects).

Regarding claim 8, Baldi teaches a device for repairing defective pixels of a liquid crystal display (col. 1, lines 13-17), comprising at least:

a defective pixel storage unit (Fig. 5, where the correction matrix is the defective pixel storage unit) used to output a defective pixel signal (Fig. 5, the output of the correction matrix into the correction circuit), wherein the defective pixel signal is used to represent the location of the defective pixel on the liquid crystal display (Fig. 5, and see col. 7, lines 20-23, it is inherent that the output of the correction matrix contains the location of defective pixels since it is applying a correction to individual pixels);

a pixel signal storage unit (col. 8, line 3, where the buffer described is the pixel storage unit) used to output a pixel signal (Fig. 5, the video signal), wherein the pixel signal further comprises a pixel brightness signal used to control a pixel with a first brightness (it is inherent that the video signal contains information for driving the pixel brightness) and a pixel location signal used to represent the location of a pixel on the liquid crystal display (it is inherent that the video signal comprises a pixel location signal since all standard video signals contain information, such as Hsync and Vsync signals, which allow for a determination of pixel location);

a location comparison unit (Fig. 5, the correction circuit), which, being coupled to the defective pixel signal storage unit and the pixel signal storage unit respectively, is used to compare the defective pixel signal with the pixel location signal to determine whether the pixel signal is used to be inputted to the defective pixel signal (Fig.5, see col. 8, lines 5-12, it is inherent that the correction circuit performs the task of matching

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the defective pixel signal correction values to the corresponding pixel location defined in the video signal);

and a pixel signal replacement unit coupled to the location comparison unit (Fig. 5, the correction circuit also acts as the pixel signal replacement unit, and since it is also the location comparison unit it is inherently coupling both units together) is used to replace the pixel brightness signal with a default brightness signal (see col. 8, lines 5-11, where the "correction" introduced in the incoming video signal is the replacement of its brightness signal; and see col. 8, lines 39-40, where the correction matrix that supplies the correction values for changing of the brightness signal is a basic or initial one, which constitutes a default value being used) if the pixel signal is determined to be inputted to the defective pixel (see col. 8, lines 5-11, it is inherent that the pixel signal is being compared to the addresses of deficient pixels in the correction memory), wherein the default brightness signal is used to control the pixel with a second brightness (see col. 8, lines 5-12, where the correction described is the equivalent of controlling the pixel with a second brightness).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 2 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baldi in view of Suzuki (US 5,289,174).

Baldi teaches a method according to the limitations of claim 1 and claim 8 as discussed above, however Baldi does not teach a method or device wherein the second brightness is of complete darkness.

However, Suzuki does teach a method and device for repairing a liquid crystal display device where a method of fixing a bright spot defect is to reduce the luminance of a defective pixel to be a dark spot pixel (col. 5, 35-43).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of Suzuki in the teaching of Baldi to change the correction value of the second brightness to be one of complete darkness in order to implement a known method of masking the bright spot problem in a LCD.

11. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baldi in view of Suzuki and in further view of Song et. al. (US 6,917,410)(hereafter, "Song").

Regarding claims 3, Baldi in view of Suzuki teaches the limitations of claim 2, however they do not teach a method wherein the default brightness signal is a low voltage signal if the liquid crystal display panel is a VA mode liquid crystal display panel.

However, Song does teach a vertically aligned (VA) mode liquid crystal display where low voltage signals are used instead of high voltage signals to drive the pixels (see col. 1, lines 46-57, and col. 8, lines 39-41).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of Song in the teaching of Baldi in view of Suzuki in order to use a low voltage signal for a VA mode LCD due to the expensive cost of high voltage tape carrier package integrated circuits required to drive high voltages.

Regarding claim 4, Baldi in view of Suzuki teaches the limitations of claim 2 as discussed above, however they do not teach a method wherein the default brightness signal is a high voltage signal if the liquid crystal display panel is a TN mode liquid crystal display panel.

However, Song does teach a twisted nematic (TA) mode liquid crystal display where high voltage signals are used to drive the pixels (see col. 1, lines 46-57).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of Song in the teaching of Baldi in view of Suzuki in order to use a high voltage signal to drive the brightness signal for a TA mode LCD due to the relatively cheaper cost of 10V tape carrier package integrated circuits that can be used on a TA mode LCD.

12. Claims 6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baldi in view of Jung (5,828,368).

Baldi teaches the limitations of claim 5 and claim 8 as discussed above, and further teaches a pixel location signal (Fig. 8, the video signal as discussed above) comprising a clock signal, a vertical synchronous signal, and a horizontal synchronous

signal (these signals are inherent in standard video signals), however Baldi does not teach a pixel location signal further comprising an enabling signal.

However, Jung teaches a video signal for a liquid crystal display further comprising an enabling signal (Fig. 5, where DE is the data enable (enabling) signal).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of Jung in the teaching of Baldi in order to accommodate a pixel location signal further comprising an enabling signal because such signals were commonly used in liquid crystal displays at the time of the invention.

13. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baldi in view of Song.

Regarding claim 10, Baldi teaches the limitations of claim 8 as discussed above, however Baldi does not teach a device wherein the default brightness signal is a low voltage signal if the liquid crystal display panel is a VA mode liquid crystal display panel.

However, Song does teach a vertically aligned (VA) mode liquid crystal display where low voltage signals are used instead of high voltage signals to drive the pixels (see col. 1, lines 46-57, and col. 8, lines 39-41).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of Song in the teaching of Baldi in order to use a low voltage signal for a VA mode LCD due to the expensive cost of high voltage tape carrier package integrated circuits required to drive high voltages.

Regarding claim 11, Baldi teaches the limitations of claim 8 as discussed above, however Baldi does not teach a device wherein the default brightness signal is a high voltage signal if the liquid crystal display panel is a TN mode liquid crystal display panel.

However, Song does teach a twisted nematic (TA) mode liquid crystal display where high voltage signals are used to drive the pixels (see col. 1, lines 46-57).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of Song in the teaching of Baldi in order to use a high voltage signal to drive the brightness signal for a TA mode LCD due to the relatively cheaper cost of 10V tape carrier package integrated circuits that can be used on a TA mode LCD.

14. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baldi as applied to claim 8 above.

Regarding claim 13, Baldi teaches a device for repairing defective pixels of a liquid crystal display panel as discussed in the limitations of claim 8 above, however Baldi does not teach a device installed in a scaler.

Regarding claim 14, Baldi does not teach a device wherein part of the elements of the device are installed in a scaler.

However, at the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate a device for repairing defective pixels in a liquid crystal display either completely or partly within a circuit device, since such an implementation would have involved a mere convenient choice of location for such a

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device. Applicant does not disclose that installing the device within a scaler solves any stated problem, provides an advantage or is used for any particular purpose. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with the location of the device removed from a scaler circuit either as shown in Fig. 5 of Baldi or as recited in the claims because the functionality of the device is not affected by the location of its elements. Further, a change in location is generally recognized as being within the level of ordinary skill in the art, see In re Japiske, 86 USPQ 70 (CCPA 1950). Therefore, it would have been obvious to a person of ordinary skill in this art to modify the Baldi reference to obtain the invention as specified in claims 13 and 14.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Dunphy et al. (US 6,822,628) teaches a method for compensating brightness variations on a field emission display by adjusting the driving voltages of the emitters according to a correction table. Hawthorne et al. (US 5,764,209) teaches a flat panel display inspection system to check for anomalies in the pixels of a display system and to correct them by raising or lowering the pixel brightness levels. Greene et. al. (US 6,271,825) teaches correction methods for brightness in an electronic display adjusting the luminance with a scaler circuit.

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16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sameer K. Gokhale whose telephone number is (571) 272-5553. The examiner can normally be reached on M-F 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SKG
November 2, 2005

Sameer Gokhale
Examiner
Art Unit 2673


JIMMY NGUYEN
PRIMARY EXAMINER